

Sub a>1. A flexible hydraulic brake line assembly for use on a motor vehicle, comprising an elongated multi-layer high pressure flexible brake hose having a predetermined inner diameter, an elongated bendable metal tube having a predetermined outer diameter greater than said inner diameter of said hose, said metal tube having a reduced end portion with a diameter generally the same as said inner diameter of said hose and extending into an end portion of said hose, a sheet metal tubular collar having a substantially uniform wall thickness and a first end portion crimped radially inwardly against said end portion of said hose and positively compressing said end portion of said hose against said reduced end portion of said tube, and said collar having an opposite second end portion crimped radially inwardly against an inwardly reduced neck portion of said tube to lock said collar to said tube.

2. An assembly as defined in claim 1 wherein said second end portion of said collar and said reduced neck portion of said tube have a non-circular cross-sectional configuration to provide torque resistance.

3. An assembly as defined in claim 2 wherein said second end portion of said collar and said neck portion of said tube have a generally square cross-sectional configuration.

4. An assembly as defined in claim 1 wherein said second end portion of said collar has a plurality of circumferentially spaced and outwardly projecting ribs defining corresponding grooves, and said tube has outwardly projecting integral ears extending into said grooves.

5. An assembly as defined in claim 1 wherein said tube includes a plastic coating extending into said second end portion of said collar and surrounding said reduced neck portion of said tube.

6. An assembly as defined in claim 1 wherein said second end portion of said collar has a plurality of circumferentially spaced and inwardly projecting integral dimples engaging a shoulder on said metal tube and forming an axial stop for said metal tube.

7. An assembly as defined in claim 1 and including a molded plastic body encapsulating said collar and said end portions of said hose and said tube, and said plastic body includes a vehicle mounting portion for supporting said assembly.

8. A flexible hydraulic brake line assembly for use on a motor vehicle, comprising an elongated multi-layer high pressure flexible brake hose having a predetermined inner diameter, an elongated bendable metal tube having a predetermined outer diameter greater than said inner diameter of said hose, said metal tube having a reduced end portion with a diameter generally the same as said inner diameter of said hose and extending into an end portion of said hose, a metal tubular collar having a first end portion crimped radially inwardly against said end portion of said hose and positively compressing said end portion of said hose against said reduced end portion of said tube, and said collar having an opposite second end portion crimped radially inwardly against an inwardly reduced neck portion of said tube to lock said collar to said tube.

9. An assembly as defined in claim 8 wherein said second end portion of said collar has a plurality of circumferentially spaced and outwardly projecting internal grooves, and said tube has outwardly projecting integral ears extending into said grooves.

10. A flexible hydraulic brake line assembly for use on a motor vehicle, comprising an elongated multi-layer high pressure flexible brake hose having a predetermined inner diameter, an elongated bendable metal tube having a predetermined outer diameter, said metal tube having an end portion with an outer diameter generally the same as said inner diameter of said hose and extending into an end portion of said hose, a sheet metal tubular collar having a substantially uniform wall thickness, said collar having a first tubular end portion crimped radially inwardly against said end portion of said hose and positively compressing said end portion of said hose against said end portion of said tube, and said collar having a second opposite end portion positively secured to said metal tube.

11. An assembly as defined in claim 10 wherein said second end portion of said collar is crimped into a reduced neck portion of said tube for securing said collar to said tube and to provide said assembly with substantial tensile strength.
12. An assembly as defined in claim 11 wherein said second end portion of said collar and said reduced neck portion of said tube have a non-circular cross-sectional configuration to provide torque resistance between said tube and said collar.
13. An assembly as defined in claim 12 wherein said second end portion of said collar and said neck portion of said tube have a square cross-sectional configuration.
14. An assembly as defined in claim 10 wherein said second end portion of said collar has a plurality of circumferentially spaced and outwardly projecting ribs defining corresponding grooves, and said tube has outwardly projecting integral ears extending into said grooves.
15. An assembly as defined in claim 10 wherein said second end portion of said collar has a plurality of circumferentially spaced and inwardly projecting integral dimples engaging a shoulder on said metal tube and forming an axial stop for said metal tube.
16. An assembly as defined in claim 10 and including a molded plastic body encapsulating said collar and said end portions of said hose and said tube, and said plastic body includes a vehicle mounting portion for supporting said assembly.
17. A method of making a flexible hydraulic brake line assembly for use on a motor vehicle, comprising the steps of forming an elongated flexible brake hose capable of withstanding high pressure hydraulic brake fluid and having a predetermined inner diameter, forming an elongated bendable metal tube having a predetermined outer diameter, progressively forming a flat sheet metal blank into a tubular collar having a first end portion and a smaller second end portion, mounting the second end portion of the collar on the tube and securing the second end portion of the collar to the tube, inserting an end portion of the

tube into an end portion of the hose, inserting the end portion of the hose into the first end portion of the collar, and crimping the first end portion of the collar inwardly against the end portion of the hose to secure the end portion of the hose to the collar and to the end portion of the tube.

18. A method as defined in claim 17 wherein the step of securing the second end portion of the collar to the tube comprises crimping the second end portion of the collar into a corresponding crimped portion of the tube.

19. A method as defined in claim 17 and including the steps of molding a body of plastic material around the collar and the end portions of the hose and tube, and molding with the body a vehicle mounting portion for supporting the collar and end portions of the hose and tube.

20. A method as defined in claim 19 and including the step of molding the body of plastic material to encapsulate a plurality of adjacent collars and corresponding end portions of the hose and tube for each collar.

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